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Entomological News

Feniseca tarquinius
Chrysalis (enlarged)

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WHEN WRITING PLEASE MENTION "ENTOMOLOGICAL NEWS."

HENRY G. HUBBARD.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

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CONTENTS:

Hubbard—Letters from the Southwest 83
Baker—Remarks on Emposca 90
Slosson—Collecting on Biscayne Bay 94
Casey—New Species of Pemphus and Tragosoma 97
Dyar—On the Smallest Pyromorphid and its Larva 99
Editorial 101
Notes and News 102
Entomological Literature 104
Doings of Societies 107
Obituary 110
Exchanges ..... i, ii

LETTERS FROM THE SOUTHWEST.

BY H. G. HUBBARD,*

The Home of Dinapate wrightii Horn.

PALM SPRINGS, CALA., February 8, 1897.

I have just returned this afternoon from a visit to Palm cañon and am somewhat sore and tired from contact with the saddle and also from my frantic exertions to find a specimen of *Dinapate wrightii*. The Washingtonia palms (*Neowashingtonia filifera*) in this small cañon are few in number, several hundreds perhaps strung along in a straggling line and most of them burned by the Indians who set fire to the fans as a smoke offering to their dead. There are very few young palms, as the freshets wash away most of the seed. However there are occasional clumps of not very old plants on the higher benches and these are sheathed with immense accumulations of dead fans. Every part of this tree is so huge and tough that I, with my small hatchet, can make but little impression upon it. Even to cut through one of the handles of the dead leaves is almost beyond my strength, and where there are accumula-

* [These letters were addressed to the undersigned at Washington, D. C., and are now, after the death of the author, published without any alterations.—E. A. SCHWARZ.]

tions of leaves upon the ground, the long handles armed with knife-like points are so interwoven, that it is a severe task to overturn them. I found no living specimen of *Dinapate* in any stage, but I uncovered a dead and disintegrated specimen of this gigantic Bostrychid beetle lying between dead fans at the foot of a young palm. Many of the old palms are uprooted by the flood waters, and I saw probably 50 of these prostrate trunks upon the ground. Almost all of them are perforated all over, with round open holes, into most of which I can insert the end of my thumb. Some of the holes will however only admit the little finger. These holes evidently made by *Dinapate* larvæ open directly into a huge pupa chamber which is two inches long and lies vertically with the grain not more than one or two inches from the surface. The remainder of the gallery is solidly packed with sawdust and leads into such a labyrinth of borings into the interior that most of the attacked logs are completely riddled, and at the heart there is very little of the original texture left. So solid is the sawdust, however, that these bored logs hardly lose any of their strength and, in fact, are used as gate posts at several of the ranches and at the hotel at the Springs, where the people think the holes are *made* by carpenter bees (Xylocopa). It is very certain that a log once vacated by a colony of *Dinapate* is never afterwards entered or again attacked by them. I should say that most of the logs showed from 100 to 250 exit holes of the beetle, and, at the time of emergence, the person lucky enough to discover such a colony would find no difficulty in filling several Mason jars with the beetles. Of course, until they begin to emerge, there is no sign upon the outside of the presence of the insects within a palm trunk. I could find no trace of the living larvæ and heard no sound of them in unperforated logs.

Dr. Murray, the landlord of this little hotel, tells me that Mr. Wright comes almost every year in September to this place and always goes without a word up the cañon, so that no one here has ever heard of the existence of *Dinapate*. I could easily trace the operations of Mr. Wright among the fallen palm trunks. He has even cut down a number of the largest and tallest trees, no doubt in the hope of attracting the beetles to the fresh cut timber. But these logs lay upon the ground

untouched except for the marks of Mr. W. are where he has subseqently cut into them, in the vain search for live beetles. I would almost suspect that they had become extinct here if it were not for my discovery of a dead specimen, which from its position between leaves still attached to the tree, could not have been there much over a year and probably not many months.

Several logs, which Mr. W. has laid open to the heart, gave me an excellent chance of examining the old borings of the beetle, and I found some dead larvæ and always, in each gallery examined, the pair of great jaws and the clypeus of the larva packed in the sawdust at the bottom of what was the pupa cell.

I think, from my own observations and the evidently fruitless visits of Mr. Wright, that colonies of the beetle are rare and very hard to find. This is probably its northern limit, but in Baja California it may possibly be more abundant.

PALM SPRINGS, CALA., February 27, 1897.

I have searched far and wide for a living brood of *Dinapate*, as I have made an arrangement with Dr. Murray to secure the beetles later on in the season in case I find a colony of the larvæ. With this object I explored Andreas cañon on the 16th but did not go far enough and found only a few vigorous young trees. On the 24th I again visited this cañon, but did not reach the best part of it, being stopped by precipitous side walls and by the stream, which is now swollen to a dangerous torrent by heavy snows in the San Jacinto Mts. The bottom of these small cañons is always nearly impassable by reason of huge bowlders and tangles of grape vines, mesquite cat's claw acacias together with, in the case of Andreas cañon, thickets of quite large Alder trees, Cottonwoods, Sycamores and piles of dead brush from the same, through which there is no forcing a passage. It is necessary to make one's way along the steep slopes, often 200 feet above the valley, and often to cross over and ascend the other wall in order to pass some vertical face of rocks. All this takes time and strength. I found however in Andreas cañon a thorax of *Dinapate*, in a pile of stream drift, showing that the beetle occurs there. I finally left the main cañon and crawled over a divide into a still smaller valley, also very difficult, but within half a mile I

found a group of seven of the most magnificent palms, 70 to 80 feet high, and clothed with dead fans from foot to crown so that they looked like huge towers. It is the first time I have seen this magnificent tree in full size and with all the fans still clinging to it. It seems almost beyond the strength of man to penetrate these dense coverings of dead fans which cover the trunks 8 or 10 feet thick on every side so that the diameter of the covered trunk is often 20 feet. I found in this little side cañon among the group of living palms a single huge dead fallen trunk which had lain prostrate many years and had been covered up with grape vines and leaves of the cottonwoods. This trunk was so entirely disintegrated that I was able to pull it away in pieces with my hands. It was bored in every direction with *Dinapate* galleries, and I had at last the good fortune to find, still in its pupa cell, a dead specimen of the beetle, the chitin of which was still perfect, but every ligament dissolved away so that the different sclerites adhered loosely in the surrounding sawdust. I found the specimen to be a male and preserved two small curiously twisted chitinous claspers which were within the abdomen.

Yesterday accompanied by an Indian I visited again Palm cañon and made straight for a certain palm tree which I had observed on my first visit, but too late in the day for a close examination. This is a young tree, not over 20 feet high, and still retains its clothing of fans. It is dead but the bud leaves are still in place. It has evidently been killed by something, and I cannot help suspecting that this has been done by the females of *Dinapate* before depositing their eggs. No *living* tree is ever attacked by them, nor do they enter any trunk that has been long dead or fallen or cut down. I suspect that the female cannot deposit her eggs in any trunk deprived of leaf bases.

In this young palm examined by me the trunk was of very large diameter, and the first chips we removed with our axes showed galleries of *Dinapate* of full size and filled with frass quite fresh and light in color, together with evidently much older galleries of smaller size in which the frass had turned dark with age. I found some of the small borings at their beginning under the fibres of the leaf bases, where they were not larger than a friction match. We finally uncovered a

living larva of *Dinapate*, full-grown and apparently forming its pupa cell or preparing to do so. After several hours' work we secured four specimens only one of which could be taken out uninjured, the other three specimens being more or less cut to pieces or crushed between the tough fibres. All these larvæ were thoroughly dormant and very flaccid; evidently they had eaten nothing for some months.

I feel sure that they are more than one year and probably more than two years old, but no doubt they would have issued by July or August of this year. All the larvæ in this trunk appear to lie not deeper than one or two inches beneath the surface of the wood. It is possible however, that they may not issue until next year, and for this reason I hesitate to have the tree cut down. The fibres of the wood are still moist and very light in color showing very slight fermentation except where the juvenile galleries of a year or two ago have penetrated. There are no young larvæ, and evidently all are of the same age and nearly or quite adult, and there are no exit holes in the tree. There may be 50 to 100 larvæ in the trunk, but of course this is only a surmise. Dr. Murray promises to watch the tree during the summer and will try to secure specimens of the beetle as they emerge.

I feel quite certain now that there are comparatively few broods of *Dinapate* existing in this region, and unless it exists also in Baja California or on the southern slope of the San Bernardino range, any year may witness its complete extinction; because unless the females, in imago, feed upon and kill the buds of living palms in which they then oviposit, the number of trees in fit condition to rear the young is exceedingly limited. I have in fact seen but this one tree in any of the cañons I have visited. It is absolutely certain that only the Washingtonia palm is capable of supporting the large broods of this gigantic borer, and if the females should fail to find a suitable tree in any year, they must inevitably perish without issue. When I consider the limited number of these trees in existence in a wild state, and the slender chance the female beetle must have of finding a dying tree in the right condition and at the right time, I am more than ever inclined to suspect that the beetles deliberately kill the tree in which they oviposit. If they killed the tree merely by feeding as adults upon the buds,

there would be many trees killed; for often more than 200 adults issue from a single infested trunk. In the case of the tree I have examined, it is probably not the presence of the larvæ that have killed it as they have not apparently penetrated deeply into the interior and their galleries are not sufficiently numerous to seriously impede the circulation of the sap, even in the outer portion of the trunk.

I feel highly elated at having discovered a living brood, and I think there is no doubt that Dr. Murray will be able to secure living specimens of the imago. It is so difficult to cut out large or small chunks of the wood without injuring the larvæ that I have not thought it advisable to secure any in this way.

PALM SPRINGS, CALA., March 13, 1897.

On March 5 I made a serious expedition with a wagon and mules and an Indian to help, to Palm cañon where I spent the day getting out more pieces of palm wood containing *Dinapate* larvæ. I secured four pieces weighing each from 2 or 3 to 6 or 8 lbs., and each containieg one or two living larvæ. The largest piece undoubtedly contains several of the larvæ. These pieces I now have in my bedroom and I can occasionally hear the larvæ cutting the fibre with a snap like a pair of shears.

I discovered much to my surprise that the interior of the palm trunk is entirely filled with galleries. I had before concluded that all the work had been done nearer the surface, the trunk being an extra thick one. I find however that this trunk like all the rest, has the interior entirely riddled with burrows and very little solid wood left by the larvæ. Many of the larvæ are still in the interior, although some of them are already forming cells near the exterior. We cut into a great many of the grubs in getting out these chunks of wood, and I secured several good additional specimens in alcohol.

It is hard to realize the enormous extent and dimensions of the *Dinapate* galleries. Not the largest of our Florida palmettos could support more than three or four of these larvæ; they would eat it all up and then die of starvation. If there are 20 or 30 holes in one of the Washingtonia palms, one finds the interior entirely eaten out from end to end, and one can follow the galleries, over one inch in diameter for 20

feet up and down the trunk following the grain and without diminishing sensibly in diameter. Then think of the yards and yards of smaller galleries made by the larva while still young. Such extensive and prodigious borings cannot be made in one or two years, and certainly not in any tree trunk of moderate size. There is certainly no other plant here than this Washingtonia palm that is capable of supporting a brood of these huge and voracious grubs. Therefore, I do not hesitate to assert that they exist only in the Washingtonia, and that they are very certain soon to become extinct. I regard the discovery of a colony as one of the most interesting entomological events of my life and I can assure you that if we breed the imagos this year from this trunk, they will not soon be duplicated by others.

There are some thousands of the trees left, but they are in small groups scattered miles apart in a few of the most inaccessible cañons of the San Jacinto range. Here the beetles are nearly extinct, but it is possible that in Baja California they may survive a few centuries longer. In times past they were abundant here, as evidenced by the numerous old trunks riddled with their burrows. But the trunks that have fallen in recent years are all free from their attacks, and as the Indians have burned all the trees that are accessible, so that their trunks are now bare of fronds, it must be now quite difficult for the female beetle to find a fit receptacle for her eggs. I am sure now that they do not oviposit in bare trunks or in healthy trees, although it is possible that the beetles kill the tree in which they ovipost their eggs.*

* [Subsequently, in June, Mr. Hubbard forwarded to Washington the pieces of palm wood; and, after some unforeseen accidents and misfortunes, a small number of imago beetles were bred from the wood at the Department of Agriculture during the latter part of August. In October, 1897, Mr. Hubbard received a letter from Dr. Murray, of Palm Springs, stating that, owing to the excessive heat in August, he had been unable to visit Palm cañon, and that, for the same reason, none of his Indians had been willing to undertake the trip. The imago and larva of *Dinapate* have been described and figured by the late Dr G. H. Horn (Trans. Amer. Ent. Soc., 13, 1886, pp. 1–4, plate I). While at San Diego, Cala., Mr. Hubbard ascertained that the type locality of *Dinapate wrightii* is Palm Springs, Cala., and not the Mojave Desert, as stated by Dr. Horn. The full-grown larvæ collected by Mr Hubbard are fully twice larger than that figured by Dr. Horn. Mr. W. G. Wright, the discoverer of Dinapate, has, as far as known to me, never published anything on the food-plant or habits of this remarkable species.—E. A. S.]

REMARKS ON EMPOASCA (Hemiptera).

By C. F. Baker.

The following remarks are called forth by Mr. Gillette's treatment of this genus in his late paper on the tribe *Typhlocybini* (Proc. Nat. Mus., XX). My statements are based on the examination of a larger amount of American material than has previously been accessible to any one person. First of all I have examined the types of all Mr. Gillette's species. My own collection, the largest of American species in existence, contains most of the species in generous series, all but one being represented (and this, *pergandei*, of doubtful validity).

I know that it is easier to pull down than to build up, and appreciate very fully the difficulties arising in the study of *Empoasca*. The attempt is not made herein to finally settle the question. This paper may be considered simply a contribution to our knowledge of what constitutes a species in *Empoasca*. There is good reason to believe that Mr. Gillette's separation of his various "species" is highly artificial, and that in many cases his distinctions are based on individual instead of on specific characters.

The species of this genus arrange themselves naturally in two groups:

I. Those having the vertex very broadly rounded apically, not even sub-angulate, rarely slightly longer at middle than at eyes; third apical cell of elytra usually sub-linear, its base more nearly *bi*-angled; including the larger green, yellow or smoky species of the genus.

II. Those having a distinctly angulated vertex, though often very obtusely so, and sometimes not longer at middle than at eyes, this being due to the fore margin being paralleled by the anterior pronotal margin; third apical cell of elytra usually more or less strongly widened apically, its base distinctly *tri*-angled; including the smaller species of the genus, which are often vari-colored.

Mr. Gillette had this same idea when he first planned his "Analytical Key," to my certain knowledge. But he does not follow it out. Instead, he breaks up the continuity of the first group by introducing *nigra*, *pulchella*, *splendida*, *albolinea* and *atrolabes*. I have examined the types and many other

specimens of these species. To me the vertex appears subangulate and the other characters those of group II. Even superficially they show a far closer relationship with the species cited under group II than with *smaragdula* and its allies.

In a study of the characters of *Empoasca* it is an exceedingly difficult matter to eliminate all possibilities of error in observation. Possible errors may be attributed to two causes, (1) malformation produced by drying, and (2) optical illusions due to varying position of parts.

Among the Typhlocybids we find insects almost as delicate and frail as some of the Capsids. The great delicacy of the body walls renders the proper preparation of specimens a very difficult matter. When mature specimens are selected and prepared with great care, the distortion caused by drying is reduced to a minimum ; but as in the case of Aphida and the little yellow and green culicid-like flies that fly about our lamps, an examination of fresh, undried material is almost imperative. I know from observation that drying produces marked changes in the form of vertex and face, and the usual collapsing of the abdomen throws the genital organs out of their natural position.

With the parts thus distorted errors are still more likely to occur in viewing various details under the microscope. Even under ordinary circumstances there is the widest chance for error (and this is true of many other Homoptera). In focusing a half or two-thirds objective on a convex vertex the proper reading of the width can be readily made, but a very slight change in the angle of the long axis of the body or in the focusing will produce differences of specific or even sectional value. The same is true of the face. Unless the point of the vertex and the tip of the clypeus are equi-distant from the lens, an error in the reading of the lens will surely be made.

No part is more difficult to study than the last ventral segment. Collapse of the abdomen frequently throws it out almost perpendicular to the body axis. It assumes something of this form when the ovipositor is in use. There is but one accurate point of view, and this is obtained when the base of the segment and its apex are equi-distant from the lens. This is a view rarely obtainable on the specimen as ordinarily

mounted. The errors resulting are obvious. To illustrate, try the following experiment: Hold a sheet of ordinary note paper before the eyes, flat surface parallel to the face, but slightly bent, as the last ventral segment usually is over the convexity of the venter. Its upper edge, if evenly held, will be truncate. Tip this edge very slightly toward the face and it becomes distinctly incurved; tip it away and it becomes "broadly rounded." Now fold the sheet along the middle line, spread it nearly but not quite to its original position, and repeat the experiment. This represents some very ordinary conditions in the last ventral segments. Tipped very slightly towards the face it becomes deeply angularly emarginate; tipped away it becomes strongly angularly produced at middle, with a concavity on either side. These widely different appearances can all be produced by variations in the position of a rectangular sheet of paper. Now if the sheet be cut into some of the various shapes which the last ventral segment really does assume, and its position varied as above, still more remarkable changes are readily produced. To such causes in part are due several of Mr. Gillette's species, and perhaps the effects observed by Osborn and Ball, and mentioned on p. 737 of Gillette's paper.

Under these circumstances individual variation is greatly accentuated. The necessity of correct observation, then, is of first importance. Next in importance measurements should be made directly from the specimen. Measurements made from camera lucida drawings, especially if the drawings are taken on a flat surface, are very inaccurate, sometimes showing almost a specific difference between the two sides of the drawing. Delicate calipers or an eye-piece micrometer should be used directly.

The forms remaining in group I, as above mentioned, I would arrange as follows:

1. SMARAGDULA, representing the only specific type in the group.
   a. variety CLYPEATA.
      (*livingstonii*).
   b. variety AUREOVIRIDIS.
      (*incisa*).
   c. variety OBTUSA.
      (*pergandei*, *denticula* and *unico'or*).

d. variety TRIFASCIATA.

I am not a "lumper," and so do not believe in the establishing of varieties except where the evidence is very unusual. I have series of hundreds of specimens in this group from various localities, and these are now in the National Museum, where they may be examined by students. I consider color as not of specific value here, and the slight variations (real, *not apparent*) in form of last ventral segment of varietal value only. The color varies from green (*aureoviridis* and *obtusa*) through yellow and brown (*clypeata* to entirely black above (*livingstonii*). The size varies from rather small in *unicolor* to large in *aureoviridis*, which is one of the largest *Typhlocybids* These names represent geographical varieties, ranging from the East (represented by the forms of *obtusa*), through the Rocky Mountain region (represented by the *clypeata* and *aureoviridis* forms) to the Pacific coast (represented by *clypeata* and *livingstonii*). Specimens approaching typical *smaragdula* are found throughout the United States, which is a significant fact. *Trifasciata* is paralleled by *virdii* and a variety of *pura* with smoky marked elytra.

All the species of group II need further study, and I would recommend that entomologists all over the West sweep *Artemisias* especially, thoroughly, and not to pause until they have laid in series of hundreds of specimens of the species found on these and other Western plants.

Atrolabes and *similis* are synonymous with *splendida*, which is a common species in the South. *Similis* is entered in Gillette's table, but I find no description of it in the text. I have seen the types.

The types of *pallida* were collected in 1879 and are totally decolored by their twenty years' experience in collections. I have swept the cotton plant in various parts of the South and have found on it only *Empoasca flavescens* and *Dicraneura unipuncta*. Other than on the color, or rather lack of color, I cannot separate *pallida* from *flavescens* (compare Gillette's descriptions and figures). *Mexicana* and *viridescens* are inseparable in large series, running one into the other.

Mr. Gillette mentions my original specimens, which he agreed with me was *pura*, yet he describes *snowi*, the description of which is very good of the original specimen of *pura*. I

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have series of *pura* from the far northwest and series from Arizona, which are his *snowi*, and I cannot separate them. Some of the specimens from the northwest have the golden coloration which he mentions and some from Arizona are without it.

The peculiar venation shown in Mr. Gillette's drawing of the elytron of *tumida* is a malformation, most other specimens not showing it.

COLLECTING ON BISCAYNE BAY.

By Annie Trumbull Slosson.

I came to Miami this year on January 9th. The weather was very warm when I arrived, but soon grew cooler. It has been very changeable and uncertain since then. We have had much more rain than is usual at this season and many cold nights. On the whole, the conditions have not been favorable for collecting. During the summer over seven thousand soldiers were encamped here. Their camp occupied the place of a dense hammock of tropical trees and shrubs, which were cut down and cleared away for this purpose. The growth of vegetation in this climate is almost miraculously rapid. The soldiers left here the last of the Summer, and their former camping ground is now a luxuriant tangle of vines, bushes and plants. Among these I have done the greater part of my collecting this season. The custard-apples (*Carica papaya*), from four to ten feet high, are covered with their yellow flowers, which seem very attractive to butterflies. *Catopsilia eubule* and *C. agarithe* are always hovering over the blossoms, the former hardly to be distinguished from the flowers themselves. Masses of a white bur-marigold (*Bidens leucantha*) cover the ground, and around these fly hymenoptera, diptera and the smaller butterflies. A tall, shrubby nightshade (*Solanum verbascifolium*) is now in flower and fruit, too, and attracts many insects. On its greenish white flowers one often sees the odd long-snouted Brenthid, *B. anchorago*. I have taken some thirty or forty specimens on these blossoms. A tiny *Anthonomus* is also found on this plant. I took many last season here, and it is just as common now. It is apparently undescribed—unless West Indian, A large purple convolvulus, the cream-

white moonflower, periwinkles both pink and white, a spurge with its deep green leaves oddly marked with blood-red, capsicum, or red pepper, with purple flowers and scarlet berries, these and many more make this jungle a bright and fragrant spot. Among these tropical plants one finds some strangers now which seem quite out of place. Seeds scattered by the soldiers while here have sprung up and tomatoes, melons, squashes, potatoes, Indian corn and other homely though useful wanderers from the kitchen-garden grow here placidly among the brilliant exotics. And the tropical insects accept them calmly and adopt them as food plants. I have found the pretty chrysomelid, *Lema solani*, which have fed hitherto on the wild nightshades here, eating the tomato now, while different insects of the tiny wild gourd (*Melothria pendula*) transfer their affections to its country cousins, the watermelon and squash. Insects are good botanists. The black nightshade (*Solanum nigrum*) is plentiful here, as elsewhere, and has many insects on and about it. The pretty little flea-beetle, *Epitrix parvula*, abounds on this plant. A large Hemipter, a yellowish brown bug, *Spartocera diffusa*, is always found on it, too, while a dainty little "hopper," of brilliant green and black, *Acutalis* sp., lives on the stem and leaves. The handsome day-flying moth, *Syntomeida epilais*, with wings of metallic green, spotted with white, and blue, red-tipped body, is common now among the flowers, while the tiny *S. minima*, its copy in miniature, is occasionally seen, and I have taken one specimen of *S. ipomeæ*, with its brilliant body striped with orange and black. The little melon moth, with white transparent wings bordered with dark brown, has already found out the introduced melons and flies among the vines by hundreds. The large cabbage butterfly, *P. monuste*, its daintier cousin of pearly white, *Tachyris ilaire*, *Terias nicippe*, of deep orange, the striped zebra, *Heliconius charitonius*; the passionflower butterfly, *Agraulis vanillæ;* the richly tinted *Anæa portia*, and, most plentiful of all, the pretty little *Eumenia atala*, called here the "Comptie fly." All these lovely winged creatures know the soldiers' deserted camping ground and visit it in the sunshine. The *Anæa* found here, and which I have distributed under the name of *troglodyta*, is, I am assured, the West Indian *portia* Fab. In life, and for a few hours after

death, this butterfly has a delicate bluish bloom over the deep rich red of its wings, entirely absent from the dried insect. I have as yet seen but two shabby specimens of *Timetes eleucha*. I found a pupa under some dock leaves the other day, and from it has just emerged a fine shining golden moth, *Plusia verruca*. I have seen but one specimen of *Composia fidellissima* this season, nor have I seen *Alypia wittfeldii*, so common last winter here around the white bur-marigold.

Skippers (*Hesperidæ*) are fairly numerous, two or three species very common. The little *P. hayhurstii* is everywhere; *Pamphila ethlius* is common, and its odd larvæ are ruining the cannas in the hotel grounds. *Erycides amyntas* is not rare this season. Dr. Dyar discovered its life history here two years ago. Its food plant is Jamaica dogwood (*Piscidia erythrina*), a shrub or small tree of the Leguminosæ. The most common Lycæna, or "little blue," is *L. ammon*. Here, and also at Lake Worth, it is very common, flying all day about flowers in the sunshine. *L. filenus* and *L. theonus*, the latter having the wings of female white faintly shaded with blue, are not rare. But a few specimens of *Thecla acis* have as yet appeared, and I have seen only one *T. martialis*. I have done but little collecting at light this season. The evenings have been too cool or too windy as a general thing. As usual, the chocolate brown sphinx, *Exyo lugubris*, is very common, both at flowers in the twilight and at light, while the lovely green sphingid, *Pergesa thorates*, not yet included in our printed lists, is not uncommon. The larger green *Argeus labruscæ* is occasionally seen, as is also the still larger sphinx, *Pachylia ficus*. One very warm still evening this month thousands of small beetles came swarming to the lights. Hundreds of the little water beetle, *Helochares ochraceus*, came into doors and windows, and many small Scolytids and Longicorns rested on floor of piazza near the electric lights. Last night I took a moth I have never before seen, and which I suppose to be *Halisidota strigosa*. It is a beautiful insect, with crimson abdomen tipped with black and thinly scaled brownish wings, a West Indian species.

(*To be Continued.*)

MIAMI, FLA., February 8th.

NEW SPECIES OF PEMPHUS AND TRAGOSOMA

(Coleoptera).

By Thos. L. Casey.

The tribe Cychrini of the Carabidæ has ever been a favorite with coleopterists, because of the large size and elegant form of the species, although the colors are usually not so brilliant as in Carabus—in fact throughout the entire genus Brennus, excepting *marginatus* and a few allied forms, the species are of an intense black. Pemphus is similar in this respect, the lustre however being invariably dark and not shining as in Brennus. The genera of the books are, in my opinion, valid and not subgenera.

Pemphus Motsch.

The following species belongs near *longipes*, and Mr. Ricksecker, to whom I am indebted for a fine pair, writes me that the habits are similar to those recorded under my description of the latter (Col. Not., VII, p. 339), the motions being rather sluggish and the gait deliberate.

Pemphus opacus, n. sp

Moderately convex, the elytra somewhat ventricose, broadening to about apical third, black throughout and dull in lustre. Head elongate, the eyes small; vertex feebly convex, very slightly wrinkled transversely; antennæ long and slender, the basal joint thicker, claviform, 2.7-3.0 mm. in length. Prothorax apparently very slightly longer than wide, dilated and broadly rounded at the sides distinctly before the middle, the sides sinuate toward base; surface very feebly convex, the side margin moderately reflexed. Elytra about a third longer than wide, nearly two and a half times wider than the prothorax; sides broadly arcuate, the humeri not well marked; surface finely and irregularly punctate throughout, each elytron with two or three discal intervals which are nearly regular; side margins feebly concave, coarsely and unevenly punctate, the reflexed edge smaller than that of the prothorax. Under surface more shining than the upper, the legs long and slender. Length 24.5-27.0 mm.; width 9 5-11.4 mm ; length of head and mandibles 6.0-6.7 mm.; length of hind tibia 9.5-11.0 mm.

California (Sonoma Co.).

The male is smaller and less ventricose than the female and has the anterior tarsi moderately dilated, with the basal joint densely pubescent beneath in distinctly less than apical half.

Since completing my revision of Brennus (l. c., p. 305), I have received a pair of *B. fulleri* Horn, from Mr. Wickham,

and find that it must be associated with the *marginatus* group by reason of the fourteen elytral striæ as stated by Dr. Horn. It is abundantly distinct from that species, or any of its allies, however, in general form, and is distinguishable at once from any other of the group by its black coloration; it can in no sense be considered a variety of *marginatus*.

TRAGOSOMA Serv.

Two species of this holarctic genus have previously (Col. Not., II, p. 491) been made known by the writer, making, with the two previously described, four well-characterized species. Two more equally distinct are now added in the following table, which includes also the European form for comparison:

Elytral sculpture uniform throughout, the punctures coarse and subconfluent; fine ridges distinctly traceable to the basal margin; antennæ glabrous.....2

Elytral sculpture not uniform, the punctures distinct and widely isolated throughout, becoming much coarser, deep and conspicuous toward base, where the fine subcostiform lines become obsolete in about basal third; antennæ pubescent.....6

2—Anterior tarsi rather strongly dilated in the male; prothorax nearly twice as wide as the head and conspicuously hairy.....3

Anterior tarsi narrow and very feebly dilated in the male; prothorax small, only slightly wider than the head, very broadly and feebly rounded at the sides, with the process slender, abrupt and spiculiform.....5

3—Sides of the prothorax acutely triangular between the apical and basal angles, with the sides of the angle nearly straight and the lateral process anguliform, broadening continuously from its apex. Northern United States and Canada.....HARRISI Lec.

Sides of the prothorax broadly rounded, with the process spiculiform and abruptly projecting from the arcuate limb.....4

4—Elytra about twice as long as wide, the side margins rather widely and very distinctly reflexed. Europe.....DEPSARIA Linn.

Elytra more than twice as long as wide, the lateral edges extremely narrowly reflexed; body brown in color, shining, the antennæ very slender and paler; prothorax strongly and closely, but evenly punctured and shining, conspicuously clothed with long, erect, fulvous hair; elytra glabrous. Length 26.0-28.0 mm., width 9.6 mm. Colorado.....SODALIS, n. sp.

5—Pronotum rather finely punctate and conspicuously hairy, deeply and transversely impressed throughout along the apical margin; antennæ relatively a little thicker than in the group with more dilated tarsi; in general color, lustre and sculpture very similar to *sodalis*, the body smaller. Length 24.8 mm.; width 8.0 mm

Utah (southwestern)—Mr. Weidt.....PARVICOLLIS, n sp.
Pronotum very coarsely punctate and glabrous or very nearly so, the surface not deeply impressed along the apical margin, at least toward the middle; antennæ much stouter, darker in color than in any other species. New Mexico.....SPICULUM Csy.

6—Prothorax large, transverse, the lateral process long, slender, finely aciculate and abruptly formed, the surface unusually convex longitudinally, very coarsely and somewhat sparsely punctate and glabrous, with short erect hairs toward the sides only; antennæ slender and filiform. California (Mt. Diablo).
PILOSICORNIS Csy.

The sexual characters are very feeble in this genus, and there is a strong and persistent similarity of type throughout; the male characters evince themselves, however, in the slightly longer antennæ, with more elongate outer joints and in the rather more dilated tarsi. In *harrisi* there is a large transverse discal area of the pronotum, which is very finely and densely punctate, and of which there is no trace in the female or in the male of *sodalis*. *Pilosicornis* is the most aberrant species of the genus, and is wholly isolated from the other five in many very radical structural characters.

ON THE SMALLEST PYROMORPHID AND ITS LARVA.

By Harrison G. Dyar.

The smallest known Pyromorphid is the Cuban genus, *Setiodes* H.-S. I have met with a form of this in the Bahamas, which I describe herewith:

Genus Setiodes H. S.

1863—**Setiodes** Herrich-Schäffer, Corr.—Blatt min. zool. ver. Regensb., xx 106.

1867—**Formiculus** Grote, Proc. Ent. Soc. Phil., vi, 184.

Palpi rudimentary; antennæ pectinate, the terminal pectinations thickened, the whole organ somewhat short and slightly clubbed; legs without spurs; wings very long and narrow, more so than in **Harrisina**, the hind wings especially reduced; fore wings with 11 veins, vein 9 absent, 10 and 11 stalked, the rest arising separately from the cell, which is divided by the distinct discal vein; hind wings with very small internal area, the internal veins all lacking, veins 2 to 7 evenly spaced from the cell, 8 absent, 2 and 3 short and down curved.

The peculiar genus has two species, or local forms, separable as follows:

Hind wing with a white spot; spot of fore wing large...**nana**, H. S.
Hind wing entirely black; spot of fore wing small..**bahamensis**, n. sp.

1. Setiodes nana H. S

This is the Cuban species, redescribed by Grote as *Formiculus pygmæus*. I have the Grote type before me, through the kindness of Dr. Skinner. It shows decidedly the effect of the lapse of time, having lost the abdomen and having been bored through by museum pests, but what is left corresponds evidently with Herrich-Schäffer's very characteristic description. Grote seems to have had only females and Herrich-Schäffer only males.

2. Setiodes bahamensis, n. sp.

Blue black; front, spot below eye, tips of rudimentary palpi, sides of collar, point at base of patagia, points on coxæ, tips of hind femora, bases of middle and hind tibiæ outwardly, a row of minute lateral points on abdomen becoming streaks on the sixth segment and a row of ventral points on the posterior edges of the segments white; fore wing with a small whitish hyaline patch in the end of the cell, divided by the discal vein, the base of cell and submedian interspace more thinly scaled than elsewhere. Hind wing uniformly black. Expanse 15 mm. One male, the last two segments tufted on the sides.

Hab.—Nassau, New Providence, B. W. I. National Museum, type No. 4,167.

Larva.—Flattened as usual in the family, thick and rather square; feet normal; five warts on thorax, four on abdomen, the warts low, simply tufts of short dark hair with three of four long pale ones at the extremities. Centrally the color is bluish white, a dorsal, two subdorsal (one above and one below wart iii) and a subtravental (below wart iv. and v), straight, narrow, purple-brown lines, connected anteriorly by a transverse band on joint 5; the ends (joints 2 to 4 and and 12 to 13) light red; a conspicuous pale yellowish spot behind wart i. and ii. of joint 12, like a pair of eyes; joints 13 and also 2 to 4 rather broken up by pale spots, but not much contrasting. Head in the hood about 1 mm. wide or a little over. Skin with clear granules; hair smooth, pointed, not bulbous. Length 8 mm.

The larva spun the characteristic white web of flocculent silk which is usual in the species of this family. A moth emerged in four months.

Food plant a species of *Ampelopsis*.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfullyreceive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer for each number three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., APRIL, 1899.

EDITORIAL.

We are very busy people here at the Academy, and we must catch the moments as they fly. We haven't the time to read all the journals that come here; and, in fact, we are not interested in all the subjects of which they treat. However, we do like to look over the journals devoted to entomology, both for our pleasure and profit, as we may wish to jot down a record or two of some interesting new point or other. We don't feel inclined to look through every page of a journal, as that is wasteful of our precious time, but in some cases it is a necessity, especially for the compiler of the literature, as some journals do not publish an index to their contents. After much circumlocution we have arrived at the point. Among onr distinguished contemporaries who merit our dire displeasure in this respect may be mentioned the "Entomologist's Record and Journal of Variation" and the "Canadian Entomologist." Could one imagine "Psyche" without its table of contents on the cover page? Such a thing is inconceivable and would be like trying to find a paper published by the U. S. Department of Agriculture. At once one's brain would begin to seethe with Old Series, New Series, Special Series and other combinations we can't unravel.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

ALLORHINA NITIDA Linn. As a Fruit Pest. In addition to what Prof. Gillette quotes from one of his correspondents at Phœnix, Ariz., about this insect as a fruit pest in the NEWS for February, I wish to say that *Allorhina nitida* has been very abundant in our Western Maryland peach orchards along the Blue Ridge Mountains during the past season. They were conspicuous upon the variety salway in September, and not infrequently from fifty to a hundred were seen clustered upon a peach. We noticed that fruit which had begun to rot upon the tree was especially subject to their attacks. They were easily disturbed, and would very often take flight when one approached the tree. I have not seen them attacking the peach in its normal condition; but I have no doubt they would. We have seen from one to five clusters of these beetles upon a tree at a time, and when one is disturbed the others take flight immediately afterward, causing much confusion and buzzing.

W. G. JOHNSON, College Park, Md.

LONG LIFE OF MOSQUITO LARVAE.—Vernon L. Kellogg, Stanford University, California.

The normal life of a mosquito wriggler is, for those mosquito species whose life history has been studied, only one or two weeks. *Dr. Howard found the normal life of the wriggler of *Culex pungens*, a mosquito common at Washington, to be seven or eight days. "The length of time," he adds, "which elapses for a generation * * * * * is almost indefinitely enlarged if the weather be cool, * * * * Larvae were watched for twenty days, during which time they did not reach full growth."

Eggs were laid by a mosquito in my laboratory at 4.30 p. m., October 9, 1898. The larvae issued from the eggs on the night of October 10th. I kept these wrigglers in a small jar of water, on my writing table. The direct rays of the sun did not strike the jar, but the laboratory is well lighted, and the wrigglers were in a normal condition as regards light. The temperature of the laboratory during the day time was about 65°-75° F.; at night, never as low as 32°, F., usually not below 40°-50° F. Occasionally a little water was put into the jar to replace that lost by evaporation. There were 14 larvæ on October 10th. They increased in size very slowly and one after another died. On December 15th there were six larvæ alive, and apparently about full-grown. On December 29th five larvæ were alive; on January 11, 1899, 3 were alive; on January 17th, 2 were alive, and on January 30th there was but one alive. This one lived until February 16th, when it died at the "ripe old age" of four months and a week. No larva pupated.

* Howard and Marlatt, The Principle Household Insects of the United States, Bull. 4, N. S., Div. of Ent., U. S. Dept., Agriculture, 1896.

Why did no larva pupate? The environment was not abnormal, unless, perhaps, the food supply was scanty. Perhaps the reason lies in the conditions of the "borning." These slow-growing, long-lived, non-pupating wrigglers issued from eggs which were laid by a virgin female. The female issued from its pupal case and almost immediately laid eggs. There was no other mosquito in the jar, and there was certainly no mating. Perhaps parthenogenesis is not unknown among mosquitoes. I do know that it is known. But if all the parthenogenetically produced larvæ fare out their lives as these I have watched did, parthenogenesis among mosquitoes is infanticide.

THE ODONATA OF THE "BIOLOGIA CENTRALI-AMERICANA."—Having recently been asked by Mr. F. D. Godman, of London, to undertake the preparation of the part of this work relating to the Odonata, and having accepted this offer, I desire to make this part as complete as possible. As the "Biologia" aims to embrace all Mexican and Central American species, whether included in the joint collections of Mr. Godman and the late Mr. Salvin or not, I shall be greatly indebted to any persons who will loan me Odonata ("dragonflies," "darning-needles") from those countries for examination, the results of such study to be included in this work. In this connection I will identify unnamed material for a very moderate return in duplicates. As some recent collectors have distributed specimens from that region quite widely, I suggest that any one willing to aid me should write to me before sending the insects and let me know the sources of their material, as, some time, labor and expense may thereby be saved.—PHILIP P. CALVERT, Academy of Natural Sciences, 19th and Race Streets, Philadelphia, Pa.

"Go to the ant, thou sluggard!" commanded the Proverb.
Accordingly the Sluggard went to the Ant.
"Go to the devil!" exclaimed the Ant.
"Talk about red tape!" sighed the Sluggard.—*Detroit Journal.*

Entomological Literature.

COMPILED BY P. P. CALVERT.

Under the above head it is intended to mention papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology will not be noted. Contributions to the anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded. The numbers in HEAVY-FACED TYPE refer to the journals, as numbered in the following list, in which the papers are published; * denotes that the paper in question contains descriptions of new North American forms. Titles of all articles in foreign languages are translated into English; usually such articles are written in the same language as the title of the journal containing them, but when such articles are in other languages than English, French, German or Italian, this fact is indicated in brackets.

4. The Canadian Entomologist, London, Ont., Feb., '99.—**5.** Psyche, Cambridge, Mass, March, '99.—**9.** The Entomologist, London, Feb., '99.—**11.** The Annals and Magazine of Natural History, London, Feb., '99.—**12.** Comptes Rendus, L'Academie des Sciences, Paris, Jan. 23, '99.—**21.** The Entomologist's Record, London, Feb. 15, '99.—**25.** Bolletino dei Musei di Zoologia ed Anatomia Comparata d. R. Universita di Torino, 1898.—**35.** Annales, Société Entomologique de Belgique, Brussels, '99.—**45.** Deutsche Entomologische Zeitschrift, '98, zweites lepidopterologisches Heft, Berlin. Feb. 10, '99.—**61.** Natural Science, London, Feb. '99.—**74.** Naturwissenschaftliche Wochenschrift, Berlin, '99.—**81.** Biologisches Centralblatt, Erlangen, '99.—**84.** Insekten Börse, Leipsic, '99.—**101.** Rovartani Lapok, Budapest, Feb., '99.

The General Subject.—Aigner-Abafi, L. The scientific arrangement of an insect collection [in Hungarian], **101.**—Bordage, E. On the probable mode of formation of the fusion between the femur and trochanter in Arthropods (transl. from French), **11.**—Collin, A. Determination of the date of publication of Linné-Gmelin, Editio XIII Regnum Animale, Pars. vi, Zoologischer Anzeiger, Leipsic, Jan. 16, '99.—Escherich, K. On myrmecophilous Arthropods with especial reference to the biology [life-history], Zoologisches Centralblatt, Leipsic, Jan. 17, '99.—Janet, C. On the mechanism of flight in insects, **12.**—Kerremans, C. Sexual dimorphism, **35**, xlii, 13, Jan. 24.—McClung, C. E. A peculiar nuclear element in the male reproductive cells of insects, figs., Zoological Bulletin, Boston, Feb. '99.—Willey, A. Trophoblast and seroa: a contribution to the morphology of the embryonic membranes of insects, Quarterly Journal of Microscopical Science, London, Jan., 99.

Economic Entomology.—Anon.—*Aspidiotus perniciosus* and American dried fruits, Revue Scientifique, Paris, Feb. 18, '99.—Bab, A. The grasshopper plague in South America, **74**, Jan. 1.—Craw-

shay, R., and Blandford, W. F. H. Larvæ in antelope horns, Nature, London, Feb. 9, '99.—Frank. New communications on the European fruit scale in comparison with the San José scale, Gartenflora, Berlin, Feb. 1.—Grassi, B., Bignami, A., and Bastianelli, G. Further researches on the cycle of human malarial parasites in the body of the mosquito, Rendiconti R. Accademia dei Lincei, Rome, Jan. 8, '99.—Howard, L. O. The Economic Status of Insects as a class, Science, New York, Feb. 17, '99.—Jablonowski, J. The home of the "blood louse" [in Hungarian], **101**.—Lintner, J. A. Thirteenth report of the State entomologist on injurious and other insects of the State of New York, 1897. Fifty-first Report N. Y. State Museum, Albany, '98.—Nuttall, G. H. F. The mosquito-malaria theory, Centralblatt für Bakteriologie, Jena, Feb. 14, '99.—Reuter, E. *Argyresthia conjugella* Zell., a new enemy to the apple fruit, **21**.—Webster, F. M. Report of Committee on Entomology, figs. Annual Report Ohio Horticultural Society, 1893. No place of publication or indication of volume, paging, etc., given!—X. On the life-habits of the pine-gall-roller (*Tortrix resinella L.*), **74**, Jan. 22

Arachnida.—Duboseq, O. On the histogenesis of the venom of the Scolopendra, Notes et Revue, Archives de Zoologie Experimentale et Generale, (3) vi, 4. Paris, '93.—Perkins, R. C. L. On a special Acarid chamber formed within the basal abdominal segment of bees of the genus *Koptorthosoma* (Xylocopinæ), Entomologist's Monthly Magazine, London, Feb., '99.—Robinson, N. My pet scorpion [*Thelyphonus giganteus*], Appleton's Popular. Science Monthly, New York, March, '99.

Myriopoda.—Silvestri, F. Diplopoda from the voyage of Dr. E. Festa to the republic of Ecuador, figs., **25**, No 324, Sept. 29.

Orthoptera.—Burr, M. Further new species of Forficularia: II; Mimicry in Orthoptera, **21**.—McNeill, J. Arkansas Melanopli, i, **5**.—de Saussure, H. Analecta Entomologica, i, Orthopterologica, 1 pl., Revue Suisse de Zoologie, v, Geneva, '98.—Tutt, J. W. Migration and dispersal of insects: Orthoptera, (cont.), **21**.—Walker, E. M. Notes on some Ontario Acridiidæ, part iii (cont.), **4**.—Webster, F. M. A prolonged season of occurrence for *Schistocerca Americana*, **4**.

Neuroptera.—Comstock, J. H., and Needham, J. G. The wings of insects, iv (cont.) [Ephemeridæ], figs., American Naturalist, Boston, Feb., '99.

Hemiptera.—Berg, C. Two new Argentine species of the genus *Gypona* [in Latin], Anales, Sociedad Cientifica Argentina, xlvii: 1. Buenos Aires, Jan. '99.—Cockerell, T. D. A. Notes on Central American Coccidæ, with descriptions of three new species,* II; The odor of Coccidæ, **4**; Three new Coccidæ from Brazil, **4**.—King, G. B. A new variety of *Chionaspis furfurus* Fitch

and notes on other species,* 5.—Kirkaldy, G. W. On some aquatic Rhynchota from Jamaica,* 9.—Tinsley, J. D. Contributions to Coccidology, i, 4.

Coleoptera.—Bordas, L. Researches on the anal glands of the Carabidæ, 12.—Fletiaux, E. Note on some Eucnemidæ and description of new species, 35, xliii, 1, Feb. 11.—Ganglbauer, L. Die Käfer von Mitteleuropa. Dritter Band, erste Hälfte. Familienreihe Staphylinoidea. 2. Theil Scydmænidæ—Histeridæ. Wien. Carl Gerold's Sohn. 408 pp. 8vo. 30 text figures.—Karawaiew, W. On the anatomy and metamorphoses of the alimentary canal of the larva of *Anobium paniceum*, figs., 81, Feb. 15.—Knaus, W. Collecting notes on Kansas Coleoptera, 4.—Pic, M. Attempt at a study of the *Ptinus* of Brazil, 35, xliii, 1, Feb. 11.—Wickham, H. F. The habits of American Cicindelidæ. Proceedings, Davenport Academy of Natural Sciences, vii, Davenport, Iowa, '99; The Lucanidæ of Ontario and Quebec, figs., 4.

Diptera.—Austen, E. E. On the preliminary stages and mode of escape of the imago in the Dipterous genus *Xylomyia* Rond. (*Subula*, Mg. et auct.), with especial reference to *X. maculata* F. and on the systematic position of the genus, 4, ii.—Kellogg, V. L. The mouth-parts of the nematocerous Diptera, ii, figs., 5.—Williston, S. W. On the genus *Thlipsogaster* Rond., 5.

Lepidoptera.—Bürger, O. Standfuss's "Experimentelle Zoologische Untersuchungen mit Lepidoptera," 81, Jan. 15.—Chapman, T. A. Lepidoptera Phalænæ of the whole world, 9; Lepidoptera with a general inland distribution in Europe, but confined to coast habitats in England, 21.—Dyar, H. G. Description of larva of *Ingura delineata* Guen., 4; A suggestion for the Pterophoridæ, 1 pl., 21; Description of the larva of *Calocampa curvimacula*, 5.—Fischer, E. Experimental critical researches on the percentage-occurrence of aberrations in *Vanessa* caused by great cold, Societas Entomologicas Zürich-Hottingen, Feb. 15, '99.—Fyles, T. W. Early stage, of *Trigonophora periculosa* Gn., 4.—Griffini, A. Observations on the genus *Nannagroecia* Reitenb., with description of a new species (Voyage of Dr. E Festa to Ecuador) fig., 25, No. 323, Sept. 14.—Hofmann, O. The Orneodidæ (Alucitidæ) of the palæarctic region, 1 pl., 45.—Newbigin, M. I. The colors and pigments of butterflies, 61.—Rebel, H. On the present position of classification of the Lepidoptera, 45.—Schultz, O. On the relative frequency of gynandromorphous structures in the various palæarctic species of Lepidoptera, 84, Jan. 26.—Smith, J. B. A new species of *Asteroscopus* Bd.,* 4.—Standfuss, M. Summary of the temperature and hybridization experiments hitherto undertaken, 84, Jan. 5.—Staudinger, O. On the species and forms of the genus *Agrias*, 45.—Stichel, H. New *Heliconius* from Southern Brazil, Entomologische Nachrichten, '99, 2, Berlin, Jan.—Trimen, R. Seasonal dimorphism in Lepidop-

tera, Transactions, Entomological Society London, '98, pt. v. Proceedings, Feb. 9, '98.—Tutt, J. W. The Lasiocampids, fig., Proceedings South London Entomological and Natural History Society, '98, pt. 1.

Hymenoptera.—Ashmead, W. H. Four new species belonging to the genus *Plenoculus* Fox,* 5.—Bulman, G. W. Bees and the origin of flowers, 61.—Perkins, R. C. L. See Arachnida.—Young, C. Descriptions of sawfly larvæ, 4.

DOINGS OF SOCIETIES.

A regular meeting of the Chicago Entomological Society was held on Thursday, February 16, 1899, at the Crerar Library. Members present, 12; visitors, 6. Prof. James G. Needham, of Lake Forest University, gave a very interesting talk on the Odonata, their habits and the best method of obtaining specimens for study.

The Society now has over twenty members and more are confidently expected. Good quarters and access to a well stocked library have placed it on a firm footing, and it is contemplated to issue a volume of proceedings in the near future.

A. Kwiat, Sec.

At the February meeting of the Feldman Collecting Social, held at the residence of Mr H. W. Wenzel, 1523 South 13th street, six persons were present.

Mr. Boerner recorded the capture of *Barinus albescens* at Westville, N. J., July 24th. It was not before recorded from so far North.

Mr. H Wenzel reported that he had identified specimens taken by Mr. Boerner at Brigantine Beach, N. J., as *Phlœophagus spadix*, an introduced species.

Mr. Boerner stated the specimens in question had been taken on timber washed up on the beach.

Mr. H. Wenzel also recorded the capture of no less than 100 species of Coleoptera from a bag of material gathered for sifting, on January 28th at Westville, N. J. The bag held about one-half bushel of débris. Eight species of Scydmaenidae were taken, and a specimen of *Conotrachelus cribricollis*, a southern species. Also a specimen of *Olisthopus micans* and six species of *Platynus*.

Mr. Boerner referred to a former communication on the hibernation of *Conotrachelus fissunguis*, and stated he had taken a specimen hibernating on January 2?d. Wm J. Fox, Secretary.

A REGULAR meeting of the Newark Entomological Society was held Sunday, February 12th, at 4:00 p. m., with President Bischoff in the chair, and ten members present. Mr. Weidt proposed Mr. W. D. Kearfott, who was unanimously elected a member. Mr. S. T. Kemp read the following article on *Saperda lateralis:*

"During the winter of 1897-98 I found in a patch of undergrowth in the neighborhood of Merchantville, N. J., numerous coleopterous larvæ infesting the young shoots of hickory and oak. One species which attracted my attention more than others, on account of the apparent impossibility of collecting the larvæ in their natural abode, proved, on maturity, to be *Saperda lateralis*. I only found them on breaking off the dead shoots of hickory, which appeared to grow out of old stumps of the original trees, cut off or worn away close to the ground. They inhabit these shoots right at the very base of them, and appear to burrow almost laterally and slightly upwards. On breaking off these shoots, which were from one to two inches in diameter, and which, when infested, break clean off easily at the base, the larva becomes almost entirely exposed, sometimes even falling out on to the ground. Not recognizing the species at the time, I visited the same patch about the 1st of May, 1898, and collected a number of them which by this time had pupated in the same situation, and when these matured, towards the end of May, they gave me the information I desired, viz.: the name of the species of larvæ I had been studying. I found, on close examination, that the wood attacked by this borer was invariably a shoot that had been bored during the previous season, and been broken off three or four feet above the ground by the larvæ of Elaphidion parallelum.

"It appeared to me from my observation, that the latter species commences the work of destruction, and that the wood is not in a fit condition to suit the requirements of *Saperda lateralis* until the following season. I found mostly one, sometimes two, and occasionally in the largest shoots three of the larvæ in the same shoot, but always in a separate burrow. The above noted habits of these larvæ may not be of much interest to experienced coleopterists, but may be read with interest by beginners, judging from my personal experience a few years back, and may tend to lead them to closer observation while on their rambles in the country.

S. T. KEMP.

Elizabeth, N. J.

Mr. Kearfott exhibited a series of blown larvæ of the genus *Datana*. Meeting adjourned. A. J. WEIDT, Secretary.

A meeting of the American Entomological Society was held February 23d, Rev. H. C. McCook, D. D., president, in the chair. Dr. Calvert exhibited a Sphinx larva from the collection of the Biological School of the University of Pennsylvania, which was so covered

with the cocoons of a parasite as to almost obscure the larva from view. The specimen was found on the red mangrove at Osprey, Florida. The parasites were Braconidæ. Two hundred and fifty larvæ were counted, although there were many more. As high as twelve hundred parasites have been reported from a single larva Dr. Skinner made some remarks on insects in relation to pain and emphasized the fact that the great numbers of progeny produced compensated for pain as a means of protection to life, so necessary in the higher order of animals. Mr. Seiss said he had kept a specimen of *Prionidus cristatus* alive for two months impaled ona pin, and it took its food and ate, for that period, as though nothing were wrong. Dr. McCook mentioned that insects deprived of their abdomens would suck honey or sweet fluids which would enter the mouth and come out the end of the thorax where severed from the abdomen. He also spoke of soldiers during the heat of battle, having severe wounds and suffering little pain. The experience of Livingston, the African traveler, was also related, in which a lion munched his arm and no pain was felt. Dr Skinner made some remarks on the subject of insects as carriers of disease, and especially mentioned the probability of *Musca domestica* carrying the *Bacillus typhosus*, the cause of typhoid or enteric fever. These insects settle on fecal matter, from patients suffering from this disease and then settle on food, and the poison of the disease is carried into the alimentary canal of other persons. The flies foot is admirably adopted for picking up "germs" and carrying them about. The life history of *Musca domestica* has no bearing on this subject, except that they are more numerous where horse manure is plentiful. All latrines in camps should be covered, as diurnal insects avoid dark places. Dr. McCook said he had visited every principal camp in this country and Cuba during the late war and found the flies simply disgusting at times. At Camp Alger, in June, flies swarmed around the mouths of patients suffering from various diseases. In the mess tents of the *officers* it was impossible to eat with any degree of comfort, without an abundant supply of mosquito netting. The president said while in Cuba he was too busy to study insects, but did notice the "cutting ants" while going up the hill to Morro Castle. A black species was climbing up the paths and the cuspidor shaped openings were observed and the ants seen carrying in the little bits of leaves and probably wondering what all the din of battle had been about. At San Juan ridge they were again noticed and around a tree a large formicary of these ants was found. They seem to have the sense of direction remarkably well developed and their burrows, on lines through a rank tropical grass and weeds, run almost as accurately as an engineer runs a straight line for a railroad. At Santiago two handsome species of spiders were observed, which had thrown their webs for forty feet, making a canopy over a path, covered on either side by rich tropical foliage about eight feet in height. These interesting natural scenes were in great con-

trast to the horrors of war as seen in the hospital near by. The spiders seen were a common *Nephila* sp. and an *Argyroepeira*. The Treasurer reported that the bequest of $5,000 from the late Dr. Geo. H. Horn had been received.

DR. HENRY SKINNER, Secretary.

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OBITUARY.

It is with sorrow I record the death, on February 25th, at Malden, Mass., of my friend and fellow collector, Henry G. White. For the past seventeen years he had been in poor health from what was supposed to be a form of Bright's disease, and two or three times a year would have severe and painful attacks, which would confine him to his bed for weeks at a time. The last and what proved to be fatal attack came upon him in August, since which time he had been unable to leave his room. He suffered greater agony than befalls the lot of most men, but, in spite of his affliction, was always cheerful and contented, and a most indefatigable collector of *lepidoptera*, in which he specialized.

Mr. White was born in Worcester, England, November 25, 1850, and came to this country when eighteen years of age. After spending a few years in Pittsburg, Pa., he traveled extensively through the West and finally returned to the Eastern States, and spent the greater part of his life in or near New York city.

In the spring of 1895 he came to Malden, and for about a year was connected with the Gipsy Moth Commission, but his continued poor health compelled him to resign his position, since which he has devoted himself to collecting insects, rearing larvæ and the many other pleasures which a true lover of nature enjoys while pursuing his favorite hobby; and what a blessing this hobby has been to him, helping to while away the weary hours and bring days of contentment to this poor sufferer.

By profession "Harry" White was a mechanical engineer, by birth and education a gentleman. His was a most generous nature, and often would he give from his own collection to help out a less fortunate friend. If he found a choice collecting ground he wanted all his friends (and all entomologists were his friends) to enjoy it with him. His unselfishness was well illustrated by a remark I once heard him make when remonstrated with for giving so freely from his cabinet. "What are they good for," said he, "except to give away? I cannot take them with me when I die."

We have all of us lost a friend indeed.

He leaves a wife whose untiring devotion helped to prolong his life many years. Two brothers survive him, one in Colorado, the other in England, also his mother. HARRY H NEWCOMB.

EXCHANGES

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COLEOPTERA from United States for exchange. Send lists. Wish to buy or exchange coleopterological works not yet in my library.—Dr. A. Fenyes, Pasadena, Cal.

LEPIDOPTERA.—Wanted, specimens of the family Arctiidæ. Will give other Lepidoptera in exchange.—W. E. Longley, 115 64th Ave., Oak Park, Ill.

LEPIDOPTERA.—For exchange a large number of American butterflies and moths in papers, also pupæ and cocoons for native specimens or exotic papilios.—G. Kircher, 573 Germania Ave., Jersey City, N. J.

LEPIDOPTERA.—Exchange desired with collectors everywhere. Have also live pupæ of *Parasa chloris, Limacodes scapha, Datana major* and *Anisota stigma*. Send lists.—S. T. Kemp, 639 Jefferson Ave., Elizabeth, N. J.

WANTED.—A microscope, dissecting or compound, in exchange for Coleoptera or other insects.—Frederick Knab, P. O. Box 249, Chicopee, Mass.

LEPIDOPTERA.—For exchange, pupæ of *Sphinx drupiferarum, Sphinx gordius, Philampelus achemon, Triptogon modesta Gastropacha americana* and others.—B. Neubarth, 1109 Nelson St., Chicago, Ill.

LEPIDOPTERA.—*Argynnis zerene, monticola, nevadensis Anthocoris hyantis, sara* and *stella* for exchange for Noctuidæ or Geometridæ named or unnamed. Lists exchanged.—A. J. Weidt, 73 James St., Newark, N. J.

LEPIDOPTERA.—*Argynnis diana, C. regalis, P. achemon, P. pandorus* wanted in exchange for New England or Australian Lepidoptera. Correspondence solicited.—E. L. Sawyer, Winchendon, Mass.

COLEOPTERA.—Wanted to purchase or exchange, all species of *Bostrychidæ* of the United States.—Rene Oberthur, Rennes, France.

LEPIDOPTERA.—Would like cocoons of *Eacles regalis* and *imperialis—Attacus columbia* and others (in exchange for cash).—J. E. Cottle, 1528 Jackson St., San Francisco.

COLEOPTERA.—I desire to exchange local beetles, named or unnamed, with collectors south, west or abroad. I will collect other orders for Coleoptera.—C. Abbott Davis, 1131 Elmwood Ave., Providence, R. I.

LEPIDOPTERA.—Moths of California and *ceanothi* cocoons for exchange. Wanted particularly *Attacus gloveri, columbia* and *Citheronia regalis*.—G. T. Mueller, 1014 Greenwich St., San Francisco, Cal.

LEPIDOPTERA.—I have pupæ of *Pap. ajax, philenor, troilus, Darp. Versicolor, Sphinx lucitiosa, Sam. ceanothii;* also South American pupæ and cocoons in exchange for exotic butterflies or rare North American pupæ.—Send list to Charles F. Timm, 62 Ralph St., Brooklyn, N. Y.

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LEPIDOPTERA for exchange. Write for list.—A. Troschel, 446 Larchmont Ave., Chicago, Ill.

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WANT BY EXCHANGE or will pay cash for Volumes 1, 2, 3 and 4, Buffalo Society of Natural Sciences. Also Proceedings American Philosophical Society of Philadelphia for 1873.—John Akhurst, 78 Ashland Place, Brooklyn, New York.

WANTED.—Scydmænidæ and Pselaphidæ, named or unnamed. Will give good exchange in Coleoptera or will collect other orders.—R. J. Crew, 225 Wilton Ave., Toronto, Canada.

LEPIDOPTERA.—Will purchase or exchange native and foreign Lepidoptera.—H. K. Burrison, West Newton, Mass.

ODONATA.—I have fine specimens of *Gomphus graslinelus*, ♂ ♀, which I wish to exchange for Odonata or Lepidoptera.—James Tough, 164 Ogden Ave., Chicago, Ill.

LEPIDOPTERA and Coleoptera from Germany for exchange for anything not in my collection.—Send list to William Kayser, Wapakoneta, O.

COLEOPTERA.—Carabidæ and Cicindellidæ of North America wanted in exchange for Carabidæ from Western Pennsylvania.—John Bright, 127 Roup St., Pittsburg, Pa.

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ODONATA—Burmeister's Types of Odonata, by P. P. Calvert, (Trans. Am. Ent Soc 1898,) 1 plate 75

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